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A Descriptive Study of Military Health Care Beneficiaries Who Use a Nurse Staffed Health Information Telephone Service

by

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A thesis submitted to the Graduate Faculty of the

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ABSTRACT

The use of the telephone to care for patients is a rapidly growing specialty in the field of nursing. However, little is known about the patients who use these nurse staffed health information telephone services, also known as nurse advice lines. This study described military health care beneficiaries who used a nurse staffed health information telephone service. Orem's (1995) Self-Care Deficit Nursing Theory was used to guide this study.

A retrospective chart audit, accompanied by the use of a computerized patient demographic system, was used to collect data about six of the ten basic conditioning factors identified by Orem (1995). When callers accessed the telephone service, the nurse would fax documentation of the calls to the patients' primary care providers. These records were gathered for data collection, along with the patient's medical record and information from the computerized database.

The findings in this study described the basic conditioning factors of military health care beneficiaries who accessed the nurse staffed health information telephone service from October 1, 2000 to October 31, 2000. Fifty-one percent of callers had called for themselves and 39% had called for a child. The majority of callers were female and White. The rank of E-5 to E-7 was most represented in the calls to the telephone service. The average number of persons per household was 3.7%, and most lived in off-base housing. The majority of calls were placed between the hours of 1100 and 1200, with Thursday being the busiest day of the week for the telephone service.

This study was a descriptive study of military health care beneficiaries who used a

nurse staffed health information telephone service. Further research needs to be done in the area of nurses who use the telephone to provide patient care. Orem (1995) emphasized the importance of collecting information about patients' basic conditioning factors (BCF's) in order to better plan nursing care. Nurses who use the telephone to provide care for their patients would benefit from identifying their patients' BCF's, since they are already at a disadvantage, unable to use all their senses in assessing their patients.

DEDICATION

This thesis is dedicated to my two children, Nick and Sophia, who unfortunately had to wait their turn while I was busy with graduate studies. And especially to my husband, Steve, who has always supported me in everything I do; and was my sounding board, confidant, encourager, and most importantly, my friend.

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CHAPTER 1

Introduction

The use of the telephone by nurses to provide care for patients has been documented since the 1960's (Nauright, Moneyham, & Williamson, 1999). Telephone nursing practice is now considered one of the fastest growing specialties in nursing (Blanchfield, Schwarzentraub, & Reisinger, 1997; Smith, 1999). However, little information is known about the patients who use nurse staffed telephone health information services. The collection of patient biographical data is an important part of the nursing assessment (Barauskas, Stoltenberg-Allen, Baumann, & Darling-Fisher, 1998; Estes, 1998; Thompson, & Wilson, 1996).

Nurses in the specialty of telephone practice could benefit by collecting patient biographical data and using this information in their overall assessment of the patient (Rutenberg, 2000). This study describes the patients who use nurse staffed telephone information services. By predicting some of the characteristics of patients who use their services, nurses in telephone practice may expand their expertise.

Telephone Nursing Practice

Telephone nursing practice is booming, and more growth is expected. Anders (1997) predicts that over 100 million people will have access to some type of telephone health information system in the year 2001, as compared to 35 million in 1997. Several factors contribute to this growth: the economical impact of managed care and the demand management system, an increase in technology across the health care field, a shift from

acute care to ambulatory care, disease management, and consumer demands for readily accessible health information and accessibility to care (Blanchfield, Schwarzentraub, & Reisinger, 1997; Bleich, 1998; Huber & Blanchfield, 1998; Smith, 1999).

Nurses use the telephone to provide care for patients in numerous ways and in a multitude of settings. Triage of patient complaints from an emergency room or physician's office is only one small part of nursing telephone practice. Nurses provide health information and counseling, education, self-care advice, provide referrals, and assess patients with chronic illnesses or after surgery. These nurses are practicing in medical centers, group practices, community agencies, preventive care centers, and specialty and general ambulatory care clinics, as well as other settings (Blanchfield, et al., 1997; Bleich, 1998; Huber & Blanchfield, 1999).

The health care community has identified telephone nursing as a cost-effective tool that has shown a high degree of patient and health care provider satisfaction. Gemignani (1996) reported that demand management programs across the country, which include nurse call centers, have saved two to three dollars in health care for every one dollar invested. Baker, Schubert, Kirwan, Lenkauskas, & Spaeth (1999) asserted that since the financial restraints of managed care required physicians to decrease costs in their practices, they use a nurse call center for cost containment.

Patient and health care provider satisfaction from the use of telephone nursing has also been documented. Melzer & Poole (1999) reported a patient satisfaction rate of 2.80 and a physician satisfaction rate of 2.92 on a 3.0 Likert scale in a survey of 32 children's hospitals with nurse call centers. Finding patient calls "...frustrating and unrewarding, both financially and psychologically..." (Baker, et al., 1999, p. unknown), pediatric

physicians cited were happy to have a nurse call center answer their after-hours patient calls. Nursing telephone practices can decrease patient anxiety and increase their satisfaction by providing prompt, readily accessible health care information (Gemignani, 1996).

Because of the rapid growth in nursing telephone practice, the American Association of Ambulatory Care Nurses (AAACN) developed and published standards which cover topics such as organizing a call center, ensuring competency of nurses, rights of the patients, and research (AAACN, 1997; Blanchfield, et al., 1997). Despite the growth and development of nursing telephone practice, little nursing research has been done in the area. According to Nauright, Moneyham, & Williamson (1999), research is needed in numerous areas of nursing telephone practice, including quality of care, outcomes, and patient satisfaction. Huber & Blanchfield (1999) suggest that it is unclear what kind of nursing activities and interventions are performed during telephone interventions. In addition, Thome & Adler (1998) concluded that little is known about the effect of nursing interventions using the telephone for patient care. But even less is known about the patients themselves who use telephone nursing services.

The Importance of Patients' Descriptive Data in Telephone Nursing Practice

The first step in the nursing process is the patient assessment. A critical piece of the nursing assessment is collecting certain descriptive or biographical data about the patient. Barauskas, et al. (1998) discuss the importance of collecting biographical data: "This information provides initial insight into a client as a unique person, and can be correlated with the clients needs and problems discovered later in the history" (p. 24).

Thompson & Wilson (1996) also state that biographical data "...begin to form a picture of the client as a unique individual" (p. 43).

Orem (1995) discusses the importance of nurses collecting and using patient descriptive data in her Self-Care Deficit Nursing Theory (SCDNT.) She calls this data "basic conditioning factors" (BCF's.) Ten BCF's are named by Orem: age, gender, developmental state, health state, sociocultural orientation, health care system factors, family system factors, pattern of living, environmental factors, and resource availability and adequacy. "Nurses obtain such information in order to have it available for use in making nursing judgements and decisions and in guiding the practical endeavors of nurses" (Orem, p. 287). Nurses who practice via the telephone should make an extra effort to collect this descriptive data from patients, since they are already at a disadvantage—they lose some of their senses they normally use in patient assessment and must depend on auditory input only.

A Universal Problem

The lack of data about patients who use telephone nursing services is not confined to just the United States. Studies done in the United Kingdom and Canada have focused on areas such as the adequacy of nurses providing triage and information services (Dale, Crouch, & Lloyd, 1998; SWOOP Group, 1997; Thompson et al., 1999), and nurse decision making and patient satisfaction (MacMaster, Goldenberg, Beynon, & Iwasiw, 1999; Marsden, 1998). These studies also included little data about the patients themselves.

Military Health Care and the Use of Telephone Nursing Practice

The Department of Defense implemented TRICARE, a managed health care program, in 1994 to decrease the costs of military medicine while improving access to care and improving services, including preventive care. Active duty personnel and their family members, and military retirees and their family members are eligible to enroll in TRICARE (Military Health System Web Site, 1999).

A nurse staffed telephone health information service was established as part of TRICARE's managed care program. Beneficiaries are invited to call a toll free number, 24 hours a day, seven days a week to speak with a nurse about a health concern, to help them decide if they need to see a health care provider, or perhaps provide self-care at home. At the time of this study, there was no published research regarding the TRICARE health information line, and only one article about telephone triage in the military (Flynn, 1998).

Purpose of the Study

The purpose of this study was to describe military clinic patients who use TRICARE's nurse staffed health information telephone services. Patients will be described using the following basic conditioning factors (BCF's): age, gender, sociocultural orientation, family system factors, environmental factors, and resource availability and adequacy. Information gained about the BCF's of this population will be used as the basis for sound nursing judgement and patient care decisions by nurses using the telephone to provide care for their patients.

Theoretical Framework

Overview

The theoretical framework used to guide this study is Dorothea Orem's Self-Care Deficit Nursing Theory (SCDNT) (Orem, 1995). The underlying principle of Orem's (1995) theory is that persons are capable of self-care or dependent care to meet certain requirements for maintaining life, growth and development, health, and well-being. Table 1 lists the foundational aspects of Orem's theory with their definitions.

Table 1-1

Terms in Orem's SCDNT with Definitions

Self-care	Deliberate acts that persons engage in to maintain life, to grow and develop, and to maintain health and well-being
Dependent-care	Acts performed on behalf of another person in order to maintain their life, to grow and develop, and to maintain health and well-being
Universal self-care requisites	Needs common to all persons necessary to maintain life, and include air, water, food, elimination, activity and rest, solitude and social interaction, prevention of biological hazards, and normalcy

Developmental self-care requisites	Needs common to all persons necessary for normal growth and development
Health-deviation self-care requisites	Needs that arise when a person becomes ill or injured
Self-care/Dependent-care agency	The ability to provide self-care/dependent-care to meet self-care requisites
Therapeutic self-care demand	All self-care actions needed to meet self-care requisites at any point in time.
Basic conditioning factors	Internal and external features which influence a person's self-care agency and therapeutic self-care demand. These include age, gender, developmental state, health state, sociocultural orientation, health care system factors, pattern of living, environmental factors, and resource availability and adequacy.
Self-care/Dependent-care deficit	Exists when person's therapeutic self-care demands exceeds their self-care agency

Nursing Systems

There are three nursing systems identified in Orem's SCDNT: wholly compensatory, partly compensatory, and supportive-educative (Orem, 1995). The wholly compensatory system is used by the nurse when the patient is unable to perform any self-care for himself or herself, and is dependent on the nurse to do so. The partly compensatory system is used when the nurse assists the patient with self-care, and the supportive-educative system is used when the patient is able to provide self-care but may need support or guidance from the nurse.

Basic Conditioning Factors and Telephone Nursing Practice

Orem (1995) defined BCF's as:

> Conditions or events in a time-place matrix that affect the values or ways of meeting persons' existent self-care requisites or bring about new self-care requisites or affect the development, operability, or adequacy of persons' capabilities to care for themselves or their dependents... (p. 456).

Dennis (1997) describes BCF's, in relation to Orem's theory, as internal and external "qualities and traits that influence the individuality of who and what the person is" (p. 24). A patient's BCF's influence what they require to care for themselves (therapeutic self-care demand), and their ability to care for themselves (self-care agency), or their ability to care for another (dependent-care agency).

There are ten BCF's named by the Nursing Development Conference Group (Orem 1995): age, gender, developmental state, health state, sociocultural orientation, health care system factors, family system factors, pattern of living including activities

regularly engaged in, environmental factors, and resource availability and adequacy. The nurse uses BCF's to help describe the patient for whom they are caring (Orem).

Orem (1995) relates the importance of gathering information about a patient's BCF's to assist the nurse in planning care: "Nurses obtain such information in order to have it available for use in making nursing judgments and decisions and in guiding the practical endeavors of nurses" (p. 287). Nurses who provide care to patients over the telephone will benefit from gathering information about their patients' BCF's to determine the best plan of care for their patients.

Problem and Research Question

Although telephone-nursing practice is growing, there is little data available to nurses about patients who use telephone health information services. Descriptive data, or basic conditioning factors, help describe the uniqueness of the patient and help the nurse plan and implement the care of the patient. Nurses who use the telephone to provide care have little information on the basic conditioning factors of their patients to guide their care.

This study was directed by the following research question: What are the basic conditioning factors of military beneficiaries who use a nurse staffed health information telephone service?

Assumptions

The following assumptions were identified for this study: a) all patients who receive care in military clinics have access to a telephone and are aware of TRICARE's nurse staffed health information telephone service, and b) patients who receive their care in military clinics use TRICARE's nurse staffed health information telephone services.

Definitions of Variables

The research variables in this study were six of the ten basic conditioning factors (BCF's) as listed by Orem in her Self-Care Deficit Nursing Theory (1995). They are age, gender, sociocultural orientation, family system factors, environmental factors, and resource availability and adequacy. For the purpose of this study, data on the four other BCF's identified by Orem, namely health state, developmental state, health care system factors, and pattern of living were not collected.

Data about the six BCF's was collected on each patient. If the caller was not the patient, the caller was considered the dependent care agent, or the person who would be administering care to the patient (Orem, 1995). According to Orem, "The nature of the relationship that exists between the dependent person and the care giver is a major conditioning factor in the establishment of the dependent care system" (p. 363). Therefore, for the purpose of this study, when the caller was not the patient, data was collected about the relationship of the caller to the patient.

Operational Definitions

The variables were operationalized in the following manner:

1. Age: number of years since birth.

2. Gender: 1-male or 2-female.

3. Sociocultural orientation:

a) Ethnicity: 1-White, 2-African-American, 3-Hispanic, 4-Native American, 5-Asian, or 6-other.

b) Military rank:1-E1 to E4; 2-E5 to E7; 3-E8 to E9; 4-O1 to O3; 5-O5 to O6; 6-O7 and greater rank; or 7-retired. Spouses and other family members were grouped into the military member's ranking.

4. Family system factors:

a) 1-Married or cohabitating, 2-Not married, 3-Child.

b) Number of persons in household.

5. Environmental factors: 1-On-base housing, or 2-Off-base housing.

6. Resource availability and adequacy: Day of week and time of day the call was made.

7. Relationship to caller: 1-Self, 2-Mother, 3-Father, 4-Spouse or Significant Other, 5-Child, 6-Other.

Significance of the Study

This study is significant to nursing since it described the basic conditioning factors of patients who used a nurse staffed health information telephone service. Recognizing the importance of collecting information about their patients' basic conditioning factors, nurses will enhance their practices by anticipating the level of the nursing system to be used in providing care to their patients. The results of this study may provide insight for future research in nursing, specifically in the area of patient care using the telephone.

Design of the Study

This descriptive study used a retrospective chart audit and a computerized patient demographic system to collect data. Burns & Grove (1997) state that a descriptive design

is used when little knowledge is known about a particular subject, and is used to describe variables that could be used in future research.

Documented telephone calls of patients who have accessed the nurse information line were collected, and data about the patients' basic conditioning factors (BCF's) were recorded. Data was collected from the telephone documentation record, the computerized demographic database, and the patient's medical record. The patients' names were deleted from the telephone documentation sheet after the data was complete, and a log book was not used, ensuring patient anonymity.

Summary

Using a retrospective chart audit and a computerized patient demographic system, data were collected on variables over a one-month period. Dorothea Orem's Self-Care Deficit Nursing Theory was used as the framework for this study. A pilot study was done to evaluate the effectiveness of the data collection tool. The purpose of this study was to describe the patients who use nurse staffed health information telephone services.

CHAPTER 2

Review of Literature

The review of literature focused on nursing and medical research related to telephone information services designed for patient use. This literature review also focused on nursing research related to the theoretical framework chosen for this study: Orems' Self-Care Deficit Nursing Theory; specifically the Basic Conditioning Factors (BCF's), and how BCF's relate to the patient's ability to perform self-care.

Defining Telephone Nursing Practice

The American Association of Ambulatory Care Nursing (AAACN) defines telephone nursing practice as "...nursing practice using the nursing process to provide care for individual patients or defined patient population over the phone" (1997). The AAACN was the first organization to develop standards for telephone nursing practice.

Telephone Nursing Practice in the Literature

Most of the literature regarding telephone nursing practice discusses nursing policies and procedures, and the type of information given to patients and the outcome of the calls. There is little data reported about the patients themselves. Rutenberg (2000) addressed the importance of collecting data such as the patient age, gender, and presence of chronic illness, but doesn't include a description of patients who may use telephone information services.

Baker, Schubert, Kirwan, Lenkauskas, & Spaeth (1999) studied the content of calls to an after-hours nurse triage service. Using a survey design, caregiver compliance was compared between private practice patients and non-private practice patients. The authors reported obtaining Institutional Review Board approval for the study.

Chi-square analysis was performed on the data to compare the number of calls and compliance with disposition for the private and non-private practice groups. Student t test was used to compare patient ages. The authors concluded that patients and caregivers of non-private practice patients made more calls after-hours and called for less serious complaints. They also found that more patients from non-private practice were clustered in the age range of less than three years old. Compliance with recommendations by the nurse for follow-up care and referral did not significantly differ between the two groups. The authors cited a lack of caller demographic information as a hindrance to the study.

A study was conducted by Huber & Blanchfield (1999) to answer questions about nursing diagnoses and interventions used with patients on the telephone, and the amount of time spent with the patients on the phone. The study was a survey design with two samples, one at a pediatric site and one at an adult ambulatory site. There is no mention of a theoretical framework for this study. A panel of five experts who estimated face and content validity reviewed the instrument. IRB approval and consent were obtained. Data were analyzed using univariate descriptive analysis.

Huber & Blanchfield reported difficulties in obtaining complete data from the nurses who completed the forms. The pediatric nurses had difficulties recording nursing diagnoses using NANDA guidelines. The nurses at the adult site used the diagnosis of "health maintenance, altered" most frequently (43%). Nursing interventions most frequently recorded at the pediatric site were "health system guidance," and at the adult site was "self-care assistance." More substantial to this study, was the reported number of telephone interactions involving female family members. At the pediatric site, the mother was almost three times more likely to call than the father. No statistics are given for the

adult site regarding the callers, except that, if the patient did not call, most frequently a wife or daughter called.

Crane & Benjamin (2000) conducted a study with patients at a pediatric continuity clinic of a tertiary hospital in Augusta, Georgia. The purpose of the study was to determine parent's compliance to the residents' telephone advice. Using a survey design, 473 caregivers were contacted three to seven days after they initially called for advice. Analysis of the data using descriptive statistics showed that 90.4% of the caregivers followed the instructions given to them by the residents. The authors also concluded that there was no difference in compliance based on the child's age. Patient age ranges were reported as: 41.6% were less than 1 years old, 35% were aged 1 to 3, 9.5% were 3 to 5 years old, and 13.9% were 6 or older. No other characteristics are mentioned for the patients or callers.

Studies conducted in the United Kingdom regarding telephone information lines have similar purposes and results—patient characteristics are not widely reported. The South Wiltshire Out of Hours Project (SWOOP) Group (1997) conducted a retrospective study to assess physician and caller satisfaction with a nurse-run telephone advice line. Physicians reviewed documentation of advice given by the nurses, and surveys were sent to callers. Descriptive statistics and Chi-square were used to analyze the data. The authors concluded that most patients (87%) were satisfied with the advice they received from the nurse, and the nurses had decreased the workload of the physicians. The only data reported about patient characteristics idicated 22 of 56 calls were regarding children under the age of 16, and six of those were under 1 year of age.

A similar study was done by Thompson et al (1999) in Wiltshire to evaluate the effectiveness of a nurse staffed, nighttime telephone information service. The study was an adjunct to a randomized control study with a control group and an intervention group. The control group consisted of the physicians answering telephone calls from patients at night, and the intervention group consisted of nurses assisting callers. The authors concluded that the nurses could manage nighttime calls as well as they had handled evening and weekend calls evidenced in a previous study. Limited data was reported on patient characteristics, and no data was reported on caller characteristics. The mean age of patients was 34.0 years in the control group and 32.5 in the intervention group. Forty-three percent of the patients in the control group were male, as compared to 44% in the intervention group.

Dale, Crouch, & Lloyd (1998) retrospectively studied how nurses assessed, triaged, and advised General Practitioners' patients who called an after hours service in London. Descriptive statistics, Chi-square, and t-test were used to analyze data downloaded from the call center's computer system. The authors concluded that nurses were able to manage 50.8% of the calls with advice alone.

This study reported more patient characteristics than the previous two, although no caller characteristics are included. Patients less than 15 years old attributed for 50.1% of the calls, and of these, 68% were for children under the age of 5. Fifty-seven percent of the patients were female. A further breakdown is given for disposition related to the patient's age. Patients under 1 year of age or over 30 years of age required more visits by the physician as compared to patients age 1 to 30. Home visits were provided to 8.6% of

the patients from ages 1 to 30, 15.1% for patients less than 1 years old, 15.4% for patients from ages 30 to 60, and 40.7% for patients over the age of 60.

A study in an accident and emergency (A&E) department by Dale, Williams, Crouch, & Patel (1997) revealed the most information about patient characteristics in the studies reviewed. The purpose of the study was to evaluate the type of advice given and the possible need for a formal nurse staffed telephone health information service. Data was collected from an A&E department in London over a three-month period. The mean age of the patients was 21.9 years; 44% were under the age of 16, and 72% were under the age of 5. Sixty-three percent of the patients were female; 37% were male. Female patients accounted for 80% of the calls in the 21-30 year old group, 67% in the 31-40 age group, and 65% in the 41-50 age group. Separate data was recorded for the callers. Forty percent of the callers were calling for themselves, 33% were parents calling for a child, and 18% were calling on behalf of someone else.

The only study found about telephone practice in a military setting was by Flynn (1998). The study investigated financial savings, effectiveness, and customer and provider satisfaction of a telephone triage service staffed by medical providers. There is no mention of informed consent or IRB review. The population studied was limited to active duty members who used the telephone service. Descriptive statistics and Chi-square were used to analyze the data. The study findings suggested that the triage service saved money by avoiding unnecessary emergency room visits. In addition, a survey found that the subjects found the service useful. Patient and provider satisfaction was also reported.

Basic Conditioning Factors Influencing Care

No literature was found about basic conditioning factors (BCF's) and patients who use telephone health information services. However, clinical research has shown that BCF's have an influence on a person's ability to care for themselves and others or, as defined in Orems SCDNT, the person's self-care agency and dependent care agency, respectively. McCaleb & Edgil (1994), using Orem's Self-Care Deficit Nursing Theory as a conceptual framework, explored the relationship between self-concept and BCF's and their affect on adolescents' self-care. The Piers-Harris Self-Concept Scale, Denyes Self-Care Practice Instrument, and an investigator-developed information profile inquiring about age, gender, developmental status, health state, family characteristics, and sociocultural characteristics were used. Basic conditioning factors were described using an investigator-developed profile. This profile was reported as being reviewed by Dorothea Orem and two experts in Orem's SCDNT. Permission from the Institutional Review Board (IRB) for Human Use and the county Board of Education were obtained, but there is no mention of informed consent from the participants.

A convenience sample of 160 adolescents from two senior high schools within a rural county in a southeastern state participated in the study. There is no mention of a power analysis. The investigators computed zero-order correlation coefficients and a stepwise multiple regression analysis to analyze data. The results of the study revealed a statistically significant relationship existed between self-concept and the samples' self-care practices, accounting for almost 17% of the variance. In addition, the researchers identified the BCF of sociocultural influences—operationalized as race, church attendance, and participation in the paid lunch program—to be important predictors of

self-care agency and self-care practices. Self-concept, race, church attendance, and participation in the paid lunch program accounted for 26% of the variance in self-care practices.

A clinical study completed by Hart & Foster (1997) investigated the self-care agency of pregnant women. The Appraisal of Self-Care Agency Scale (ASA) developed by Evers et al. was administered to two groups of pregnant women: 127 enrolled in prenatal care clinics in southeast Georgia, and 119 enrolled in childbirth education classes in southeast Georgia. There is no mention of IRB approval or informed consent. Orem's theoretical framework was used to guide the study.

Data on BCF's were also gathered on the participants. The researchers collected data on health state, developmental state, socioeconomic status, education, ethnicity, resource availability, family system, and age. Data were analyzed using t tests, Kruskal-Wallis One Way Analysis of Variance, Komogorov-Smirnov Two Sample test, and Wilcoxon-Mann-Whitney test. An alpha level of .05 was selected. The authors concluded that BCF's had an influence on ASA scores: primiparous women had higher ASA scores than multiparous women (health state), college educated women had higher scores than women without a college education, and women with private insurance had higher scores than women with public financial assistance (socioeconomic status.) The researchers also concluded that marital status, ethnicity, and age did not influence self-care agency in this study.

The influence of BCF's on self-care abilities was also shown in a clinical study done by Jirovec & Kasno (1993). A convenience sample of 83 elderly residents from seven nursing homes in southern Michigan participated in the study. There was no

mention of a power analysis. Verbal consent was obtained, but there was no mention of IRB approval. The authors cited Orem's theory as the theoretical framework for their study. Participants completed a demographic questionnaire examining the BCF's of age, sex, sociocultural orientation, family system, patterns of living, and health care system. Other instruments used were the Appraisal of Self-Care Agency (ASA-A) Scale developed by Evers & Isenberg; the Katz Index of Activities of Daily Living developed by Katz, Ford, Moskowitz, Jackson, & Jaffee; and the Philadelphia Geriatric Center Morale Scale (PGCMS) developed by Lawton. The BCF of health state was measured using the Katz index of Activities of Daily Living and the PGCMS. Reliability and validity of these two instruments were not reported.

Descriptive statistics, a correlation matrix, and hierarchical multiple regression analysis were used to interpret the data. The results of the study, as concluded by the authors, suggested that the BCF's of occupation and race, influenced self-care abilities, accounting for 17% of the variation in the ASA-A scores.

Dodd & Dibble (1993), using Orem's Self-Care Deficit Nursing Theory as a framework, surveyed a convenience sample of 127 patients receiving chemotherapy in 18 health care settings in California to study various predictors of self-care. There was no mention of a power analysis. Consent was obtained, but there was no mention of IRB approval.

A total of nine instruments were used in the study. Of those nine, two were identified as tools used to gather information on BCF's: a demographic tool collected information on age, gender, and years of education, and the Karnofsky Performance Status Scale developed by Karnofsky, Abelmann, Craver, & Burchenal in 1984. It is

unclear which tools were used to measure the BCF's of health care system, family system, and patterns of living. The reliability and validity of the Karnofsky Performance Status Scale were not reported. Descriptive statistics and multiple regression, including graphic residual analyses, were used to analyze the data. The investigators concluded that the data from this study showed that the BCF's of health state, family system factors, and years of education accounted for 38% of the variance of self-care.

The influence of BCF's on mothers' abilities to care for their children were investigated by Gaffney & Moore (1996) using the Dependent Care Agent Questionnaire (DCA) developed by Moore & Gaffney, and the Basic Conditioning Factors Questionnaire constructed by the researchers. In this study, the DCA was found to have a coefficient alpha of .88 with item-total correlations that ranged from .27 to .63. Content validity was reported as being established by experts in Orem's theory and by mothers, development of items based on suggested content areas, content analysis of developed instrument by 12 experts, and finally by revision of the instrument. The reader is directed to Moore & Gaffney (1989) to provide a further description of the instrument and it's development. Orem's theory was cited as the framework for this study. The Basic Conditioning Factors Questionnaire was used to collect age, gender, family system factors, sociocultural orientation, and health state.

A convenience sample of mothers aged 23 to 57, a subset of a sample that participated in the instrument development, participated in the study. The participants cared for children ages one through 16 years. A power analysis was done, but scores were not reported. Informed consent and IRB approval were obtained.

Data were analyzed using descriptive statistics and regression analysis. The data suggested that the BCF's of child age and ethnic group were significant predictors of mothers' performance of dependent care activities for children. Overall, the BCF's studied by the investigators accounted for 13% of the variance in dependent care performance. The investigators purport that the remaining variance may be attributed to the BCF's which were not included in this study, such as developmental state, health care system factors, pattern of living, environmental factors, and resource availability. The authors recommend expansion of the measurement of BCF's in future studies.

Mosher and Moore (1997), using Orem's theory as a framework, examined the relationships among self-care, dependent-care, and BCF's on the self-concept of children diagnosed with cancer. A descriptive and correlational design was used with a convenience sample of 74 children and their mothers from two oncology clinics. Informed consent and verbal and written assent were obtained, and IRB approval was obtained. A power analysis was reported at .80 for the sample size of 74. Five instruments were used in the study, including The Demographic Data Form developed by the researchers to collect information on the BCF's of child's age, gender, ethnic group, socioeconomic status, and therapy status.

Data were analyzed using descriptive statistics, t tests, Pearson correlations, and multiple regression. The authors concluded, "children with higher self-concept scores perform more self-care practices and they receive more dependent care from their mothers" (p. 121). In this study, the authors found that the BCF of age (7.8% of the variance) was the only significant predictor of self-concept—self-concept increased with age. The authors further suggest that other BCF's not investigated in this study, such as

developmental state, environmental factors, family system factors, healthcare system factors, pattern of living, and resource availability may influence self-concept and need to be further investigated.

In a similar study, Moore and Mosher (1997) examined children's and their mothers' adjustment responses to the children's cancer. The authors again used Orem's theory as the framework for this study. Adjustment responses for children were defined as self-care practices and anxiety. Adjustment responses for mothers were defined as dependent-care practices and anxiety. The convenience sample of 74 children (.80 power level) were divided into two groups: those receiving treatment for their cancer (42%), and those receiving no treatment during the time of the data collection (58%). Informed consent, assent, and IRB approval were obtained.

Five instruments were also used in this study; including the researcher developed Demographic Data Form. The Demographic Data Form was used to collect information about the BCF's of child's age, gender, health state (on or off therapy), sociocultural orientation, and socioeconomic status.

Descriptive statistics, MANOVA, regression, and canonical correlation were used to analyze the data. The researchers concluded that children off-therapy exhibited a lower anxiety level, but that there was no difference between the two groups in self-care practices or trait anxiety levels. The same held true for the mothers. Mothers of children off-therapy had a lower state anxiety level, but there was no difference in the two groups in dependent-care practices. A significant relationship between children's and mothers adjustment responses was also shown.

Regression analyses was used to determine if BCF's predicted adjustment response for both the children and the mothers. Basic conditioning factors accounted for 13.4% of the variance in self-care practices of children, and 9.2% of the variance in dependent-care practices of the mothers. Basic conditioning factors accounted for 16.9% of the variance in state anxiety of children, and 9.3% of the variance for mothers. For trait anxiety, BCF's predicted 5.3% of the variance in the children, but no significant findings were found in the mothers regarding trait anxiety. Increasing age in children was associated with less self-care practices, and increasing age and being on-therapy were associated with increased anxiety. In the children, being female and non-Caucasian were associated with more trait anxiety, and being male and Caucasian were associated with more dependent-care from the mothers.

Through this study, the authors concluded that BCF's did predict children's self-care practices and state anxiety significantly. They also concluded that BCF's were predictive of mothers' dependent-care practices and state anxiety. Socioeconomic status as a BCF was not significant in this study, and BCF's did not significantly influence trait anxiety.

Geden & Taylor (1999), reported that BCF's accounted for 27% of the variance in couples' "collaborative care systems." The authors define the collaborative care system, or CCS, as "...a system of care wherein adults share the work of their self-care" (p. 329). The participants in the study were a convenience sample of 108 couples who shared a residence, were in a relationship for at least 5 years, and at least one of who had a self-labeled health problem. Institution Review Board approval was obtained, but there is no mention of informed consent or performance of a power analysis.

Five instruments were used to collect data for the study. Health state was measured by response to two questions rated on a 6-point equal interval scale. A demographic questionnaire was also used to collect information about BCF's.

Descriptive statistics and a stepwise multiple regression analysis were used to analyze the data. The BCF's of cohesion in the family, dyad gender, and the couple's estimate of their present health accounted for 27% of the variance in the couple's CCS. The authors concluded that these BCF's had an influence on self-care in this study and supported Orem's SCDNT.

Summary

A number of studies were found that examined telephone nursing practice. However, the literature reveals that little data has been gathered about the patients who call nurse telephone information services. In addition, the review of literature reveals that the Basic Conditioning Factors (BCF's), as described by Orem (1995), significantly influence patients' health, including self-care and dependent-care agency. Orem stated that nurses use patients' BCF's to help identify their patients and plan for their care. Therefore, nurses who provide health and illness information to patients over the telephone would benefit from anticipating and knowing their patients BCF's, since these have been found to influence their self-care and dependent-care. The purpose of this study was to profile some common BCF's of military patients who call a nurse staffed health information telephone service.

CHAPTER 3

Method

This chapter outlines the study design, instrumentation, subjects, collection techniques, and analysis of the data for this study. The purpose of the study was to describe military health care beneficiaries who used a nurse staffed health information telephone service.

Design of the Study

This was a descriptive study using a retrospective chart audit accompanied by computerized patient demographic system to collect data. Burns & Grove (1997) state that a descriptive design is used to help describe and categorize information in areas in which there is little data. The information can then be used to guide future correlation, quasi-experimental, and experimental studies.

The records used for this study were documented encounters of patients who accessed the nurse health information telephone line, provided by TRICARE for military health care beneficiaries. Documentation of the encounters categorized as urgent or emergent were faxed to the patients' primary care manager for review and for filing in the patient's medical record. Before they were sent to medical record department for filing, a copy was made of the encounter. The collected data were the variables identified as six of the basic conditioning factors in Orem's Self-Care Deficit Nursing Theory. These are:

1. Age: number of years since birth.
2. Gender: 1-male or 2-female.
3. Sociocultural orientation:

a) Ethnicity: 1-White, 2-African-American, 3-Hispanic, 4-Native American, 5-Asian, or 6-other.

b) Military rank:1-E1 to E4; 2-E5 to E7; 3-E8 to E9; 4-O1 to O3; 5-O5 to O6; 6-O7 and greater rank; or 7-retired. Spouses and other family members were grouped into the military member's ranking.

4. Family system factors:

a) 1-Married or cohabitating, 2-Not married, 3-Child.

b) Number of persons in household.

5. Environmental factors: 1-On-base housing, or 2-Off-base housing.

6. Resource availability and adequacy: Day of week and time of day the call was made.

7. Relationship to caller: 1-Self, 2-Mother, 3-Father, 4-Spouse or Significant Other, 5-Child, 6-Other.

Sample

TRICARE provides a health information telephone service for military health care beneficiaries, some of who receive care at the clinics of the United States Air Force Academy (USAFA), Colorado Springs, Colorado. The telephone service is advertised to beneficiaries when they enroll in TRICARE, and the phone number to the service is listed on their insurance cards. As of March 2000, there were 25,354 individuals enrolled in the clinics at USAFA and therefore eligible for the telephone service.

The clinics received faxed documentation of encounters categorized as urgent or emergent with the telephone service on a daily basis; the total number of calls ranged from 10 to 30 records per week. A copy of these records were made before being

distributed to the callers' primary care managers who in-turn forward them to the medical records department for filing in the callers' medical records.

Procedure

Data was compiled from calls made to TRICARE's nurse staffed health information telephone service from October 1, 2000 until October 31, 2000. Data was collected solely by this researcher. No personal identifiers were used on the data collection tool and a logbook was not used, ensuring anonymity of the callers and patients. The research data was compiled using Microsoft Office 2000, Excel.

Most of the information about the patients' Basic Conditioning Factors (BCF's) was obtained from the telephone encounter record and the computerized patient demographic database. The patients' race was obtained from the medical record.

A pilot study was done to test the efficiency of the data collection tool. In the pilot study, data was collected on ten of the callers and/or patients who accessed the nurse staffed health information telephone service. The pilot data was cleaned and frequencies calculated. Based on the results of the pilot study, it was determined the data collection tool was adequate for this study.

Analysis

Because the purpose of this study was to describe military health care beneficiaries who use a nurse staffed health information telephone service, descriptive statistics were used to analyze the data. Data was entered into Microsoft Office 2000, Excel and statistical analysis was accomplished with this program.

Summary

TRICARE, the military's health delivery system, provides a nurse staffed health information telephone service for its beneficiaries. When a caller accesses this service and is triaged as urgent or emergent, documentation of the encounters is faxed to the caller's primary care managers for follow-up. This study described the callers who use this service, using as variables, six of the basic conditioning factors (BCF's) identified in Orem's Self-Care Deficit Nursing Theory (1995). Orem emphasized the importance of nurses collecting information on their patient's BCF's to assess their patient's ability to care for themselves and their dependents, and to better plan the nursing care for their patients.

This study used descriptive statistics to analyze the basic conditioning factors of patients who use a nurse staffed health information telephone service. The findings of this study can facilitate nurses in using BCF's to better understand the unique identities of their patients and therefore, more effectively plan their care.

CHAPTER 4

Introduction

A description of the subjects and the findings of the study are presented in this chapter. This study was directed by the following research question: What are the Basic Conditioning Factors (BCF's) of military health care beneficiaries who use a nurse staffed health information telephone service? A descriptive design was used to investigate the research question. A retrospective chart audit, accompanied by the use of computerized patient demographic database, was used in the collection of the data. The research subjects were beneficiaries assigned to the United States Air Force Academy clinics who had called the nurse staffed health information telephone service provided by TRICARE from October 1 to October 31, 2001. Microsoft Office 2000, Excel was used to compile the data and perform descriptive statistical analysis.

A pilot study was conducted on the first ten records received from the health information telephone service to determine the effectiveness of the data collection tool. The pilot data was cleaned and frequencies computed. It was determined that the data collection tool was adequate for the data collection, and no changes were made.

Description of the Subjects

The nurses who staffed the health information telephone service provided by TRICARE documented a total of 123 urgent and emergent calls—approximately 4 calls per day—from beneficiaries assigned to the United States Air Force Academy clinics. Of those 123 documented calls, 97 of them were included in this study. Twenty six of the documented calls were not used due to the following: (a) Inability to identify the patient's race in the medical record for 18 of the calls; (b) four of the patients were active duty

females, and it was not possible to determine the marital status or household size of those individuals; (c) four of the calls were not usable due to other reasons.

Presentation of the Findings

The following Orem's (1995) Basic Conditioning Factors were collected on the subjects: (a) age; (b) gender; (c) sociocultural orientation, operationalized as ethnicity and military rank; (d) family system factors, operationalized as marital status and number of persons in the household; (e) environmental factors, operationalized as living on or off base; (f) resource availability and adequacy, operationalized as day of the week and time of the day the subjects called the nurse staffed health information telephone service. In addition, information was collected on the caller—whether the caller was calling for himself or herself, or someone else.

Relationship to the Caller

Of the 97 usable calls to the nurse staffed health information telephone service, 51% of the callers were calling for themselves, 36% were mothers calling for a child, 3% were fathers calling for a child, and 10% of the callers were calling for a spouse or significant other. When calling for themselves, the majority of the callers were female—almost 92%. Seven of the ten calls from spouses or the significant other (70%), were males calling for females.

Age of the Patient

The average age of the patients was 29.6 years of age, with a range 0.25 to 76 years of age, and a standard deviation of 22.76. Table 1 shows a breakdown of the patients according to age.

Table 4-1

Number and Percentage of Patients by Age

Patient Age in Years	Number of Patients	Percentage of Total Patients
Less than 1	6	6.2
1 to 5	14	14.4
6 to 12	11	11.3
13 to 17	6	6.2
18 to 30	15	15.5
31 to 40	15	15.5
41 to 50	7	7.2
51 to 60	7	7.2
61 to 64	7	7.2
65 and older	9	9.3

Gender

Females comprised the majority of the patients served by the telephone service—74.2% versus 25.8% of male patients. However, for patients under the age of 18, there was less difference between the number of female patients and male patients: 20, or 54.1% and 17, or 45.9% respectively. When calling for themselves, females outnumbered males almost 11 to 1.

Sociocultural Orientation

Ethnicity.

The majority of the patients who accessed the health information line were White (92%), 5% were African American, 2% were Hispanic, and 1% was Asian.

Military rank.

The patients who accessed the health information telephone service were broken down by rank. Forty-six percent of the patients were enlisted military members or the family member of an enlisted person, 30% were officers or family members of officers, and 24% were retired military members or family members of a retiree. Figure 4-1 shows the breakdown of patients according to military rank. If the patient was not active duty or a retired military member, they were categorized according to the rank of the active duty family member, or as a retiree.

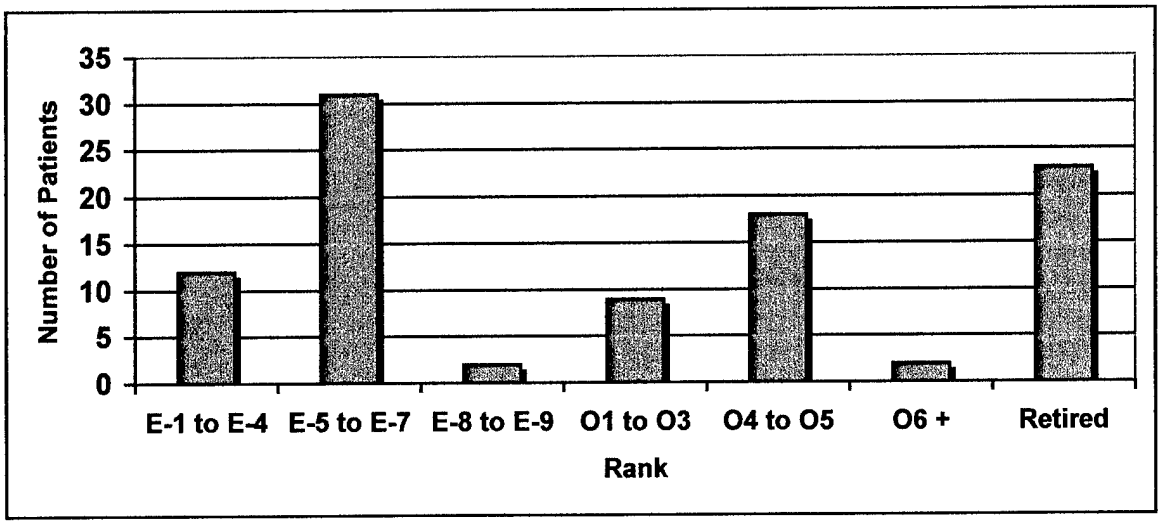

Figure 4-1. Number of patients per military rank.

Family System Factors

Marital status.

When the patient was not a child, 96.5% of the patients were married. Of the four callers who were not married, three were over the age of 18 still living with their parents and had called the telephone service for themselves, and the fourth was a significant other calling for a female patient.

Number per household.

The average number of persons living in the households of callers who accessed the telephone service was 3.7%, with a range of two to seven persons per household, a median of four, a mode of four, and a standard deviation of 1.38.

Environmental Factors

Housing.

The Basic Conditioning Factor described by Orem (1995) as environmental factors was operationalized as whether or not the patient lived on or off the Air Force base. Most of the patients—77.3%--resided in housing off base.

Resource Availability and Adequacy

Day of the week.

Figure 4-2 shows the number of calls to the health information telephone service by day of the week.

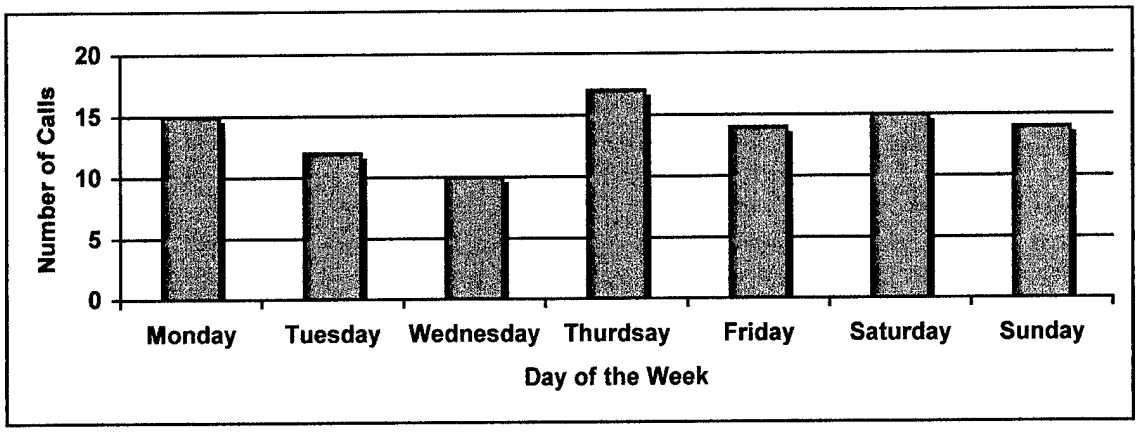

Figure 4-2. Number of calls by day of the week.

Time of the day.

The time of the day of calls to the telephone service was collected in hours and minutes, and then converted to hours and depicted in Figure 4-3.

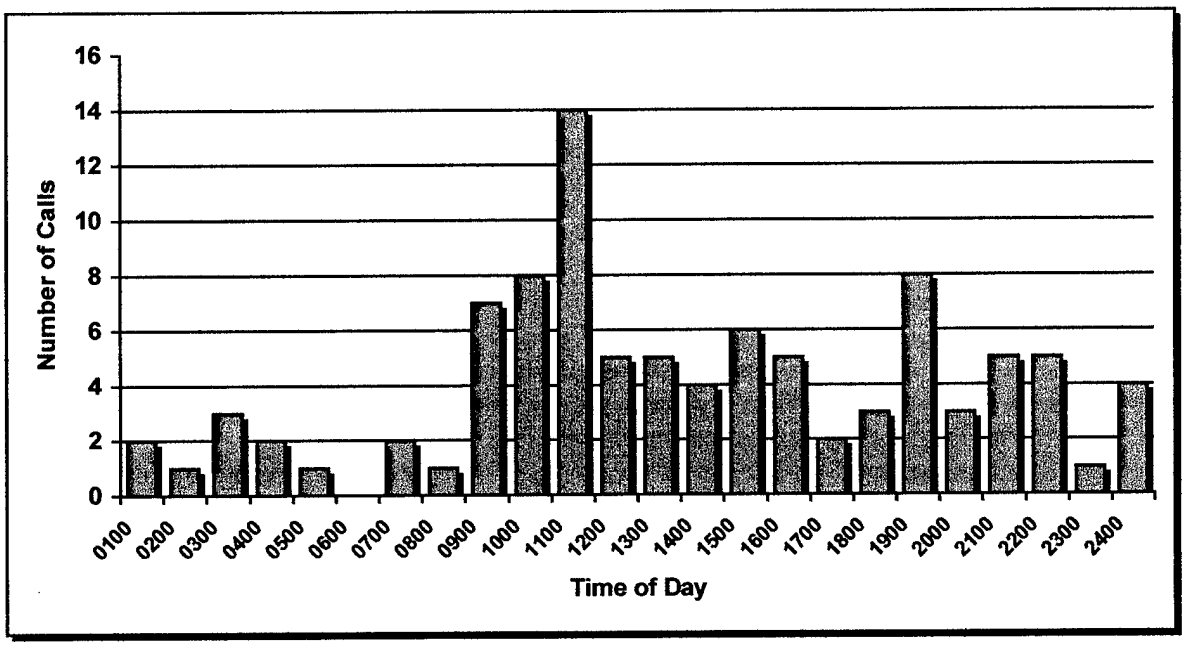

Figure 4-3. Number of calls per time of day.

For the period of this data collection, the majority of the calls were made between 11:00 and 11:59. The two other busiest times of the day were between 10:00 and 10:59, and

between 19:00 and 19:59. The least busy time of the day was between 06:00 and 06:59 when no calls were placed. When isolating the weekends from the rest of the week, the busiest call time was between 16:00 and 16:59, when 5 of 29 calls were made; the second busiest time was between 19:00 and 19:59, when 4 calls were made.

Summary

The presentation of findings described the United States Air Force Academy's clinic members who accessed TRICARE's nurse staffed health information telephone service from October 1, 2000 through October 31, 2000, and were categorized as urgent and emergent. Of the 123 documented calls, 97 met requirements for data collection. Of these, 51% of the callers were calling for themselves, 39% were calling for a child, and 10% were calling for a spouse.

Females were much more likely to call for themselves than were males. And when calling for a child, the majority were mothers. The majority of patients under the age of 18 were between the ages of 1 and 12 years old (25.7%). Over the age of 17, the majority was between the ages of 18 and 40 (31%).

Those identified in the medical record as White comprised 92% of the patients who accessed the telephone service. The rank of E-5 to E-7 was most represented, followed by retirees. The ranks of E-8 to E-9, and O6 and higher were least represented. When the patient was not a child for whom a parent was calling, 96.5% of the patients were married. The average number of persons per household was 3.7%, and the majority of the patients lived in off-base housing.

The most calls were placed to the nurse staffed health information telephone service on Thursday, with Wednesday being the least busy day during the month of

October 2000. The majority of the calls were placed between the hours of 1100 and 1200 (24-hour clock). No calls were placed between 0600 and 0700. On the weekends, however, the busiest hour was between 1600 and 1700.

CHAPTER 5

Discussion

This study describes the military health care beneficiaries assigned to the clinics at the United States Air Force Academy, Colorado, who accessed the nurse staffed health information telephone service provided by TRICARE. Data was collected using a retrospective chart audit accompanied by the use of a computerized patient demographic database. Orem's (1995) Self-Care Deficit Nursing Theory provided the framework for this study. The participants in this study were a convenience sample of patients who accessed the telephone service between October 1, 2000 and October 31, 2000, and were triaged by the nurse as either urgent or emergent.

Information about the participants' Basic Conditioning Factors in the categories of age, gender, sociocultural orientation, family system factors, environmental factors, and resource availability and adequacy was collected (Orem, 1995). In addition, the patient's relationship to the caller was recorded. At the time of this study, there was little information available in the literature about the patients who accessed nurse staffed health information telephones services or advice lines, and no studies that used Orem's Self-Care Deficit Nursing Theory as a framework. Although it is not possible to make conclusions when comparing this study to previous studies, general comparisons among the patients who accessed TRICARE's nurse staffed health information telephone service will be made to the information about patients presented in previous studies.

Interpretation of the Findings

Relationship to the Caller

There are only a few comparisons that can be made with the results of this study and previous studies that have been done regarding the relationship of the caller to the patients. In this study, 51% of the callers were calling for themselves. A study by Dale, Williams, Crouch, & Patel (1997), conducted in a United Kingdom accident and emergency department where nurses where giving health information to patients over the telephone, it was reported that 40% of the callers were calling for themselves. In the same study, the authors reported that 33% were parents calling for a child, and 18% were calling on behalf of someone else. In this study, 39% were parents calling for a child, and 10% were spouses or a significant other. The Dale et al study does not make a distinction between whether or not the parent was the mother or father.

Huber & Blanchfield (1999) conducted a study of nurse staffed telephone services, and reported that mothers were almost three times a likely to call for a child than were fathers. These results vary significantly from what was found about parents who accessed TRICARE's nurse staffed health information telephone service, as mothers were almost 11 times more likely to call than fathers.

Age

Perhaps the most information available in the literature about patients who access nurse staffed telephone services is about age. In this study, the average age of the patient was 29.6 years old. Dale, Williams, Crouch, & Patel (1997) reported a mean age of 21.9 years, and in a study conducted in Wiltshire by Thompson et al (1999), mean ages were reported as 34.0 years in the control group, and 32.5 years in the intervention group.

Disparities also exist among studies found in the literature regarding the number of children whose parents accessed the telephone service for health information. This study compared somewhat to a study conducted in the United Kingdom by the South Wiltshire Out of Hours (SWOOP) Group (1997), which reported that 39.3% of the patients were under the age of 16. In this study, 38.1% of the patients were under the age of 18, and of those, 54.1% were under the age of 6. However, a study conducted by Dale, Crouch, & Lloyd (1998) reported that patients under the age of 15 years old accounted for 50.1% of the calls; children under the age of 5 accounted for 68% of those.

According to data in a report from the United States Air Force Managed Care Forecasting and Analysis System, children under the age of 18 accounted for 31% of the individuals assigned to the United States Air Force Academy (USAFA) in 1998. Although not all of these children may be receiving care at the USAFA clinics, it does give an indicator of the amount of representation of this population found in the data obtained in this study, (patients under the age of 18 accounted for 39.1% of the calls to the telephone service.) An age group that was under represented in calls to the telephone service was those between the ages of 45 and 64 years. According to the Managed Care Forecasting and Analysis System data, 31% of individuals assigned to USAFA were between the ages of 45 and 64 years, but in this study, that age group only accounted for 19.6% of the calls to the telephone service.

Gender

Females were much more likely to use the nurse staffed health information telephone service than males, either when calling for themselves or when calling for a child. This same finding was reported in a study by Dale, Crouch, & Lloyd (1998), and

by a study conducted by Dale, Williams, Crouch, & Patel (1997). Although, in this study, females aged 18 and over accounted for 92% of the patients calling for themselves, females aged 18 and over account for only 42% of the individuals assigned to the United States Air Force Academy in 1998 (United States Air Force, n.d.).

Sociocultural Orientation

Ethnicity.

Patients identified as White in the medical record accounted for 92% of the callers who accessed the telephone service. Although this ethnic group represents the majority of the active duty force in the United States Air Force as a whole, the number is slightly higher when compared to other sources. According to data released by the Air Force Personnel Center Public Affairs on October 6, 2000, Whites represented 74.26% of the active duty force. Census data from 1990 shows that 86.0% of those living in housing on base at the United States Air Force Academy were White (Office of Social, n.d.). There is no data available in the literature about the ethnicity of patients who accessed nurse staffed telephone health information or advice lines.

As discussed earlier, 18 records sent from the TRICARE nurse staffed health information telephone service could not be included in the data collection for this study because the patient's ethnicity was not recorded anywhere in the medical record. Orem (1995) identifies sociocultural orientation as one of the Basic Conditioning Factors (BCF's) that the nurse should collect on patients. The patient's race and ethnicity are an important aspect of sociocultural orientation. The National Institutes of Health created the Office of Research on Minority Health in 1990 to improve the health status of minorities, recognizing that some diseases disproportionately affect minorities (Office of Research,

1999). Based on these facts, it is important for nurses to collect data about the sociocultural BCF's of their patients.

Military rank.

In this study, military rank was measured as one aspect of Orem's (1995) Basic Conditioning Factor of sociocultural orientation, as rank imposes a certain amount of status in the military, and the military pay scale is based on rank. At the time of this study, there was no discussion in the literature about any type of sociocultural factors of the patients who called nurse staffed health information telephone services.

The patients served by TRICARE's nurse staffed telephone service were grouped most frequently into the enlisted ranks of E-5 to E-7. According to United States Air Force Military Personnel Flight (MPF) Data from May 1999, 27.52% of the active duty personnel assigned to the United States Air Force Academy (USAFA) held the rank of E-5 to E-9. In this study, 34.02% of the patients served by the nurse staffed telephone service were grouped into the ranks of E-5 to E-9, with only 6.06% of those representing the ranks of E-8 to E-9. In addition, the same data from the MPF reported that 28.37% of active duty members assigned to USAFA held the enlisted rank of E-1 to E-4, while only 12.37% of the same rank accessed the telephone service. Based on this information, it would appear that the ranks of E-1 to E-4 were under represented in this study, and the ranks of E-5 to E-7 were over represented. The officer ranks were also under represented, as only 29.90% of the patients were grouped into all officer ranks, but the MPF data indicates that 44.11% of the active duty members assigned to USAFA are officers.

Family System Factors

Marital status.

Data regarding the Basic Conditioning Factor of family system factors, including marital status, is also unavailable in the literature. Although the breakdown of single and married individuals receiving their health care at the clinics at the United States Air Force Academy is unknown, 4,722 single enlisted personnel lived in the dormitories in 1990 (Office of Social, n.d.). In this study, only two patients over the age of 17 were unmarried, but both lived with their parents. It appears that unmarried persons over the age of 18 are less likely to access the nurse staffed health information telephone service.

Number in household.

Data about the number of persons living in the household of the patient assisted by the telephone service is not reported in the literature. The 1990 census data regarding those living on base at the United States Air Force Academy, reported an average household size of 3.57 persons (Office of Social, n.d.). The data from this study indicated an average household size of 3.69 persons.

Environmental Factors

Housing.

Information regarding the type of housing patients lived in when accessing a nurse staffed health information telephone service is not available in the literature. According to this study, patients were more than three times as likely to live in housing off base, rather than on base. When using data from both the 1990 census and the United States Air Force Managed Care Forecasting and Analysis System, one can get a rough estimate of the percentage of persons assigned to the United States Air Force Academy

(USAFA) who reside on base. The Managed Care data reports that 33,370 individuals were assigned to USAFA in 1998, and the 1990 census data reports that 9,062 persons resided on base (Office of Social, n.d.; United States Air Force, n.d.). Using this data, approximately 27.16% of individuals assigned to USAFA live on base. This would compare somewhat to the data from this study, as 22.68% of the patients assisted by the nurse staffed health information telephone service lived on base.

Resource Availability and Adequacy

Day of the week.

Although one may predict that the most calls to the nurse staffed health information telephone service would occur on the weekends, when clinic resources are fewer, this was not the case. Thursday logged the most calls (17), however Saturday and Monday were not far behind (15 calls on each of these days). There is no data available in the literature about the frequency of calls per day of the week.

Time of the day.

One may also predict that the majority of calls to the nurse staffed telephone service would occur after clinic hours, however, this again was not the case. The majority of calls (14) occurred between the hours of 1100 and 1200. The next busiest time frames were between the hours of 1000 and 1100, and 1900 and 2000, with 8 calls placed during each of these time frames. There is also no data available in the literature regarding the time of day patients accessed nurse staffed telephone services.

Limitations

This study is limited in that its findings cannot be generalized to the rest of the population. It was also limited to data from one month of one year, which could impose

seasonal types of limitations. Using a post chart audit combined with a computerized database may be limiting for data collection, as there is no personal contact, and the computer system may not be completely updated. Other limitations include that data from only the patients who were triaged by the nurses to be either urgent or emergent were available for use in this study, and that 18 records were not used because it was impossible to determine the ethnicities of those patients from the medical record.

Significance to Nursing

This descriptive study of military health care beneficiaries who use TRICARE's nurse staffed health information telephone service has relevance to all areas of nursing, including the Advance Practice Nurse (APN). Orem's (1995) Self-Care Deficit Nursing Theory can be used to guide nurses who provide care to patients over the telephone. Significance to nursing practice, education, and administration will be discussed.

Nursing Practice

The use of the telephone to provide health care information and direction is growing, especially in the nursing arena. Unfortunately, nurses often use standardized protocols based on a medical model. Nurses need to incorporate nursing theory into their practice when providing care to patients over the phone.

Orem (1995) stressed the importance of nurses collecting information about their patients' basic conditioning factors (BCF's). Basic conditioning factors describe the patient, assigning uniqueness to the patient, and guide the nurse in planning individualized care. Basic conditioning factors help the nurse decide what the patient will need to care for him or herself, and the ability of the patient to care for him or herself. Since nurses who provide patient care over the telephone are already at a disadvantage,

unable to use all of their senses in assessing their patients, it is even more important for them to collect information about their patients' BCF's to help guide their care. A nurse staffed health information telephone service based on Orem's theory makes sense—aren't we depending on the callers to care for themselves or provide dependent care?

Nursing Education

Nurses at all educational levels need to become more aware of the role nursing theory plays in developing their practices. Advance Practice Nurses have the opportunity to educate not only other nurses, but also physicians, administrators, and other health care providers about the importance of integrating nursing theory into telephone practice. Nurses could easily integrate Orem's (1995) Self-Care Deficit Nursing Theory into their telephone practice, by starting with collecting information about their patients' basic conditioning factors to help them determine their patients' ability to care for themselves.

Nursing Research

Further nursing research needs to be done on telephone nursing practice. This study was a foundational descriptive study examining a small portion of the military population who use TRICARE's nurse staffed health information telephone service. Advance Practice Nurses can take the lead in conducting more descriptive and correlational studies in this ever-growing field of telephone nursing practice.

Recommendations

Further research needs to be done in the area of nurse staffed health information telephone services and in the practice of providing patient care over the telephone as a whole. This research could be easily carried out using Orem's (1995) Self-Care Deficit Nursing Theory as a framework. Descriptive studies could be done to determine exactly

what types of information nurses are collecting about their patients to help guide their care. Descriptive studies could be done to gather information regarding more of the ten basic conditioning factors described by Orem. Correlational studies could be performed to identify relationships among the patients' basic conditioning factors. These are only a few of the areas in which further research could be conducted.

In this study, it was often difficult to determine the patient's ethnicity from the medical record. Nurses and other health practitioners should take care to record the patient's ethnicity in an obvious place in the medical record. It has been well established that certain racial and ethnic minorities suffer from a disproportionate amount of certain illnesses and diseases. Nurses and other health care providers should consider the patient's ethnicity when planning care.

Little research has been done in the area of nurses who use the telephone to provide patient care. Advance Practice Nurses can lead the way to improve this care with further education and research. Advance Practice Nurses should ensure that patient care provided by nurses to patients using the telephone is based on nursing theory, such as Orem's (1995) Self-Care Deficit Nursing Theory, and not merely a medical model. When these elements are integrated into telephone practice, nurses can be sure they are providing the best care possible to their patients.

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APPENDIXES

Appendix A

Data Collection and Coding Tool

1. Relationship to Caller: 1-Self, 2-Mother, 3-Father, 4-Spouse or Significant Other, 5-Child, 6-Other

2. Age: Number of years since birth

3. Gender: 1-Male, 2-Female

4. Sociocultural orientation:

a) Ethnicity: 1-White, 2-African American, 3-Hispanic, 4-Native American, 5-Asian, or 6-Other

b) Military rank:1-E1 to E4; 2-E5 to E7; 3-E8 to E9; 4-O1 to O3; 5-O4 to O5; 6-O6 and greater rank; or 7-retired. Spouses and other family members will be grouped into the military member's ranking.

5. Family system factors:

a) 1-Married or cohabitating, 2-Not married, 3-Child.

b) Number of persons in household.

6. Environmental factors: 1-On-base housing, or 2-Off-base housing.

7. Resource availability and adequacy:

a) Day of the week: 1-Monday; 2-Tuesday; 3-Wednesday; 4-Thursday; 5-Friday; 6-Saturday; 7-Sunday

b) Time of the day: 24-hour clock

University of Colorado at Colorado Springs

Institutional Review Board

1420 Austin Bluffs Parkway
P.O. Box 7150
Colorado Springs, CO 80933-7150
(719) 262-4150

Memorandum

TO: Judy Stoltmann

FROM: Sandy K. Wurtele, IRB Chair

DATE: September 28, 2000

RE: A Descriptive Study of Military Health Care Beneficiaries...
(IRB #00-049)

Thank you for submitting your Request for IRB Review, and for obtaining the letter of approval for accessing data from the TRICARE nurse advice line. Your study has been approved until 9-28-01; should you need to continue this project past that date, you will need to submit another Request for Renewal.

Good luck with the project, and thank you for your concern about human subject protection issues.

cc: Missye Bonds
Jewell Chamber, Ph.D.

DEPARTMENT OF THE AIR FORCE

HEADQUARTERS UNITED STATES AIR FORCE ACADEMY

USAF ACADEMY COLORADO

MEMORANDUM FOR Capt Judy Stoltmann 13 October 2000

FROM: HQ USAFA/XPR

SUBJECT: Exempt protocol approval

1. The protocol, *A Descriptive Study of Military Health Care Beneficiaries*, received expedited review by the USAFA Institutional Review Board and was unanimously approved as exempt from IRB oversight in accordance with 32 CFR 219.101, paragraph (b)(2)(i). Board members agreed that because names and telephone numbers were separate from the data collection instrument, data were totally anonymous.

2. The protocol will be considered closed, but will be retained in XPR for 5 years then sent to permanent storage for 75 years. It has been assigned the protocol tracking number of FAC2001001. Please use this number in any correspondence regarding this protocol in the future.

3. As the primary investigator on the study, the Air Force Medical Operations Agency requires that you retain your data, reports, etc. for 3 years following completion of the study.

4. If the conditions under which you have been granted exempt status change, please notify the IRB Chair or IRB Administrator immediately. We will advise you on whether additional IRB review is required.

5. If you have any questions or I can be of further assistance, please don't hesitate to contact me at 333-3091 or the IRB Chair, Dr. George Mastroianni at 333-4218.

Dr. Kathleen A. O'Donnell
USAFA IRB Administrator

DEPARTMENT OF THE AIR FORCE
10TH MEDICAL GROUP
UNITED STATES AIR FORCE ACADEMY COLORADO

20 Sep 00

Patricia L. Davis, Col, USAF, NC
Deputy Commander, Chief Nurse Executive
10th Medical Group (USAFA)
USAF Academy CO 80840

Sandy Wuertle, Ph.D., Chair, UCCS Institutional Review Board
Office of Sponsored Programs
Cragmor Hall, Room 108
Colorado Springs, CO

Dear Dr. Wurtele,

This is to inform you that Judy Stoltmann, graduate student at Beth-El School of Nursing at the University of Colorado, Colorado Springs, has permission to access and use for her thesis the faxes and summary data reports sent to this medical facility regarding the patients who have called the TRICARE nurse advice line. It is also permissible for her to access the Composite Health Care System Registration screens to obtain patient demographics.

Sincerely,

Patricia L Davis

PATRICIA L. DAVIS, Colonel, USAF, NC